Projet 9 - MAX743 / Alimentation à découpage ±15V à partir d'une tension de +5V

Projet : IUT3

Info : [DIV415]

Révision : 5 septembre 2003 – Sujet de formation ORCAD 2003/2004.

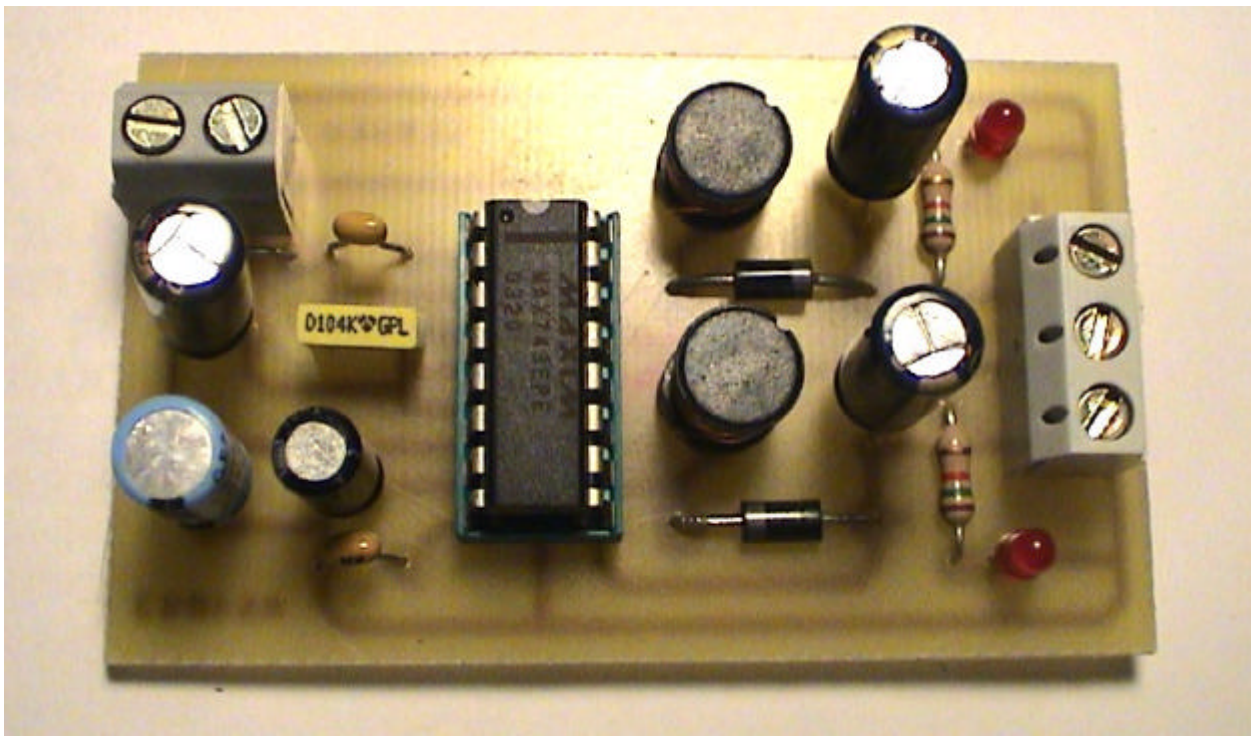


Figure 9.1. Maquette (images-maquettes\alim4-1.jpg).

9.1 Liste des documents

- Prix du montage.
- Schéma électronique.
- Circuit imprimé coté cuivre.
- Circuit imprimé coté composants.
- Implantation des composants.
- Documentations.

9.2 Désignation des composants

Tableau 9.1. Liste de composants (projets-iut3.xls / MAX743).

N°	Quantité	Référence	Désignation	Empreinte
1	1	C1	120uF	RADIAL08
2	2	C7,C2	10nF	CK06
3	1	C3	120uF	RADIAL06
4	1	C4	100nF	CK06
5	1	C5	10uF	RADIAL08
6	1	C6	1uF	RADIAL06
7	1	C8	120uF 25V	RADIAL08
8	2	D1,D3	1N5817	DO41
9	2	D2,D4	3mm	LED3
10	1	JP1	+5V	02PL2
11	1	JP2	SORTIES	03PL2
12	2	L1,L2	100uH	RADIAL08
13	2	R1,R2	1.5k	RC04
14	1	U1	MAX743	16DIP300L
15	2	VIS2,VIS1	VISSERIE	M3

9.3 Allure des principaux composants

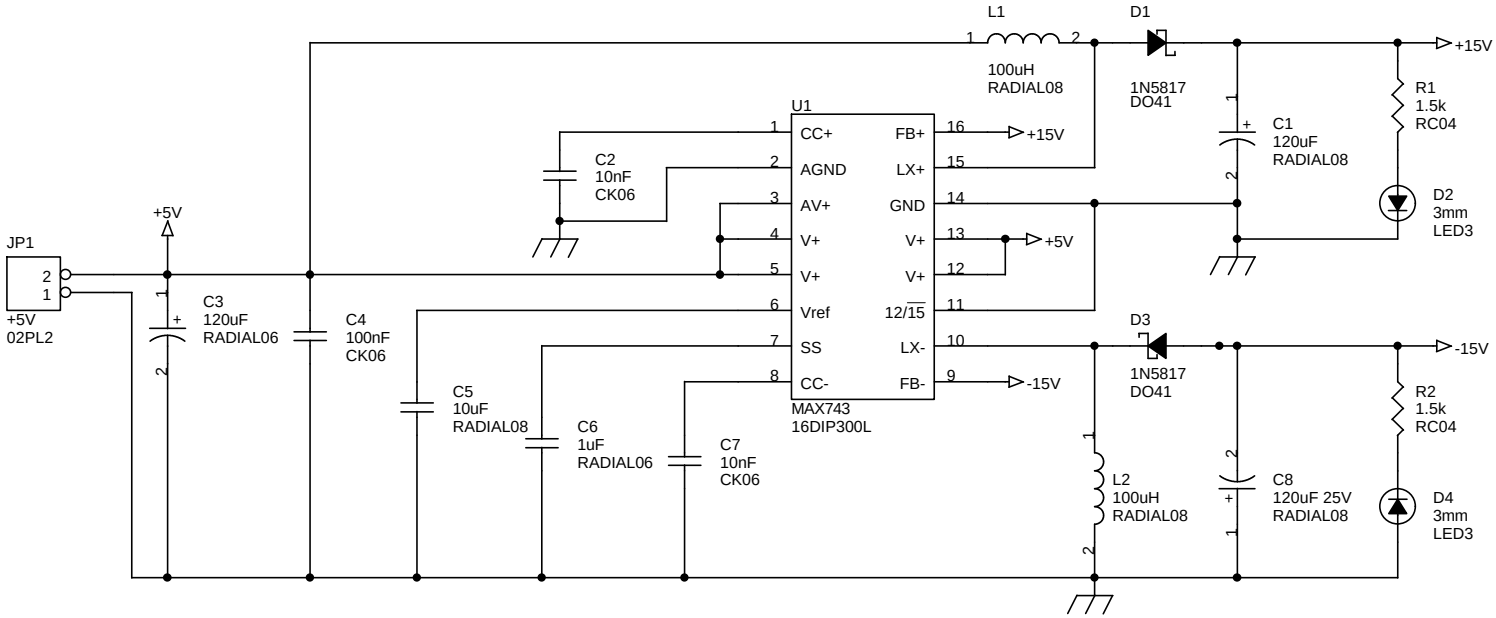
Fig. 9.2. Bornier CANDEM 3 points (images-composants\bornier1.jpg).

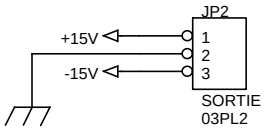
Alimentations + V/- V à partir du + V
Revised: Friday, September 05, 2003
Projet IUT2 \ [DIV401] \ 12V5V15V - ALIM4 Revision: 1

1 euro 6,55957 F

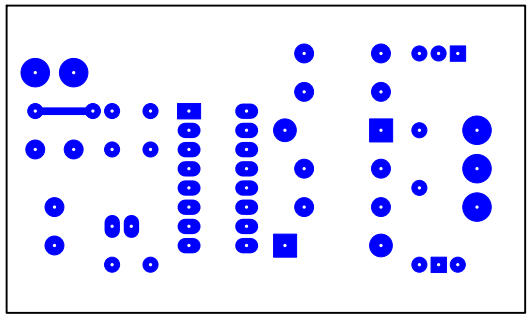
Référence	Qu.	Désignation	Fournisseur	Date	Code Cde.	U.d.V.	Prix U	Prix T.	
C1	1	120 uF 25V FC	Radiospares	octobre-03	315-0546	5	, €	, €	1,59 F
C7,C2	2	10nF	Radiospares	octobre-03	166-6184	10	, €	, €	4,88 F
C3	1	120 uF 25V FC	Radiospares	octobre-03	315-0546	5	, €	, €	1,59 F
C4	1	100nF	Radiospares	octobre-03	166-8433	10	, €	, €	1,18 F
C5	1	uF V série M	Radiospares	octobre-03	228-6622	5	, €	, €	0,46 F
C6	1	uF V série M	Radiospares	octobre-03	228-6846	5	, €	, €	0,46 F
C8	1	120 uF 25V FC	Radiospares	octobre-03	315-0546	5	, €	, €	1,59 F
D1,D3	2	1N5817	Radiospares	octobre-03	183-7651	10	, €	, €	4,59 F
D2,D4	2	LED,signalisation,3mm T1,rouge,5.5mcd,HewlettPackard,HL MP1301	Radiospares	octobre-03	178-0909	10	, €	, €	3,94 F
JP1	1	Bornier plots à visser	Radiospares	octobre-03	446-7328	5	, €	, €	2,01 F
JP2	1	Bornier plots à visser	Radiospares	octobre-03	446-7334	5	, €	, €	3,02 F
L1,L2	2	Inductance,cylindrique,montage vertical, µH,Würth, .	Radiospares	octobre-03	432-4401	10	#####	, €	16,64 F
R1,R2	2	1.5k	IUT GEII	octobre-03	200-657	1	, €	, €	49,85 F
U1	1	MAX743	Radiospares	octobre-03	265-083	1	#####	, €	88,75 F
VIS2,VIS1	2	VISSERIE	Radiospares	octobre-03	357-788	80	#####	, €	1,74 F
Divers	1	Support tulipe 14 broches	Radiospares	octobre-03	100-9941	10	, €	, €	5,10 F
Divers	29	Circuit imprimé x mm	IUT GEII	octobre-03	CI	600	#####	, €	4,52 F

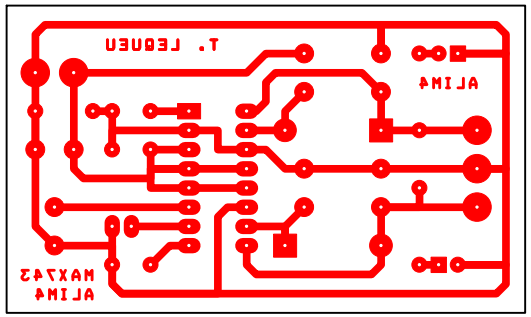
TOTAL H.T. :	, €	191,89 F
#####	, €	37,61 F
TOTAL T.T.C. :	**, €**	229,50 F





Auteur : Thierry LEQUEU		
Title: Alimentations +15V/-15V à partir du +5V		
Size: A4	Document Number: Projet IUT3 \ [DIV415] \ MAX743 & ALIM4	Rev: 1
Date: Thursday, November 06, 2003	Sheet 1 of 1	

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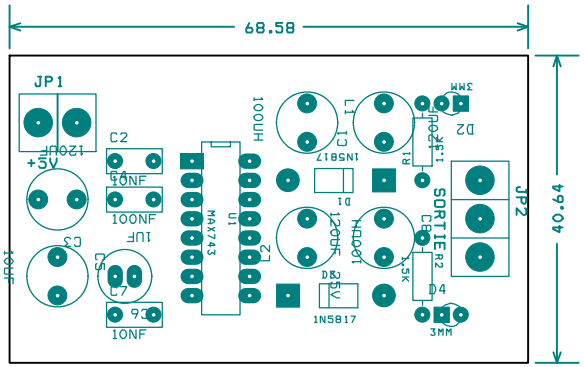
ALIM4
MAX743
ALIM4


68.58
40.64
JP1
12OUT
+5V
C2
10NF
100NF
C3
10UF
C5
C7
10NF
U1
MAX743
100UH
L1
1N5817
D1
120UH
L2
1N5817
D3
5V
3MM
D2
1.5K
R1
SORTIE
R2
1.5K
D4
3MM
JP2

19-2873; Rev 0; 7/90

MAXIM

Dual-Output, Switch-Mode Regulator (+5V to ±15V or ±12V)

General Description

The MAX743 DC-DC converter IC contains all the active circuitry needed to build small, dual-output power supplies. Relying on simple two-terminal inductors rather than transformers, the MAX743 regulates both outputs independently to within ±4% over all conditions of line voltage, temperature, and load current.

The MAX743 typically provides 75% to 82% efficiency over most of the load range. It operates with current-mode feedback at 200kHz, so it can be used with small, lightweight external components. Also, ripple and noise are easy to filter.

The MAX743 is inherently reliable due to its internal power transistors and monolithic construction. Thermal shutdown prevents overheating, and cycle-by-cycle current sensing protects the power-switch transistors. Other features include undervoltage lock-out and programmable soft-start.

Inductors, capacitors, and diodes to complement the MAX743 can be ordered directly from Maxim in production quantities (page 11). An evaluation kit for prototyping (MAX743EVKIT) is also available (page 9).

If higher load currents are needed, refer to the MAX742 data sheet for a device that drives external power MOSFETs.

Applications

DC-DC Converter Module Replacement

Distributed Power Systems

Computer Peripherals

Portable Instruments

Features

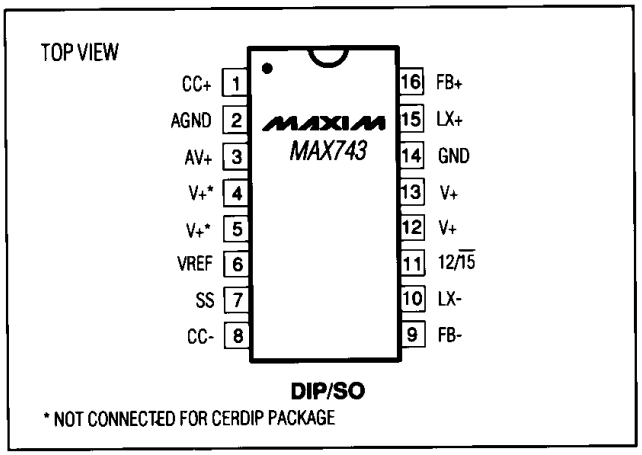
- ♦ **Generates ±100mA or ±125mA**
- ♦ **Specs Guaranteed for In-Circuit Performance**
- ♦ **±4% Output Tolerance Max Over Temp, Line, and Load**
- ♦ **82% Typ Efficiency**
- ♦ **Low-Noise, Current-Mode Feedback**
- ♦ **On-Board Current Limiting**
- ♦ **Thermal Shutdown Protection**
- ♦ **Undervoltage Lock-Out and Soft-Start**
- ♦ **Switches From ±15V to ±12V Under Logic Control**
- ♦ **Evaluation Kit Available**
- ♦ **Internal Power MOSFETs**

Ordering Information

PART	TEMP. RANGE	PIN-PACKAGE
MAX743CPE	0°C to +70°C	16 Plastic DIP
MAX743CWE	0°C to +70°C	16 Wide SO
MAX743C/D	0°C to +70°C	Dice
MAX 743EPE	-40°C to +85°C	16 Plastic DIP
MAX743EWE	-40°C to +85°C	16 Wide SO
MAX743MJE	-55°C to +125°C	16 CERDIP

Ordering information continued on page 11.

Pin Configuration



Typical Operating Circuit